

Cannon Road Green Streets Project

Environmentally Friendly Landscapes
for Healthy Watersheds



Public Meeting Presentation
December 14, 2017

www.montgomerycountymd.gov/watershedrestoration

Introductions

- **Fernando Benitez, PE**
 - Project Manager, Stantec
- **Gina Arnett, PE**
 - Project Designer, Stantec
- **Markku McGlynn**
 - DEP Project Manager (Consultant)
- **Ho-Ching Fong**
 - DEP Watershed Planner

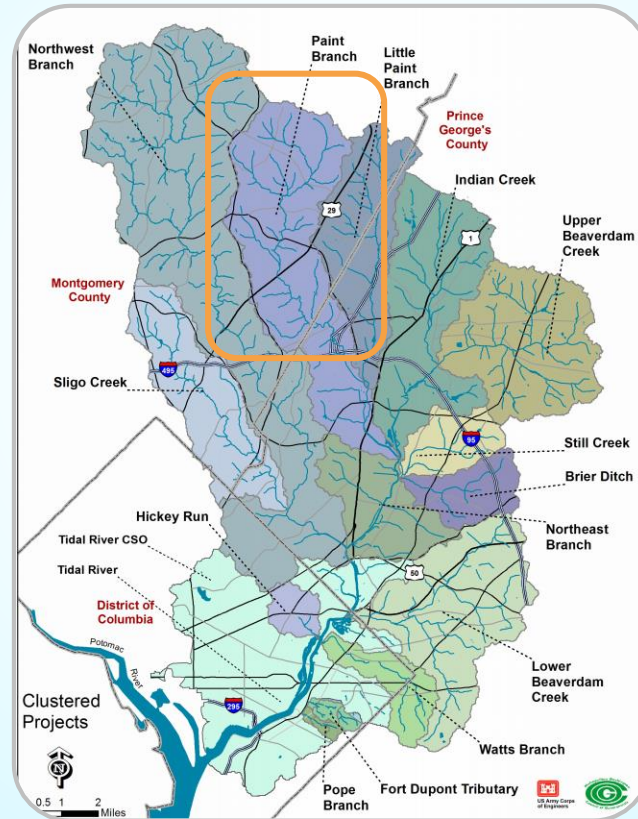
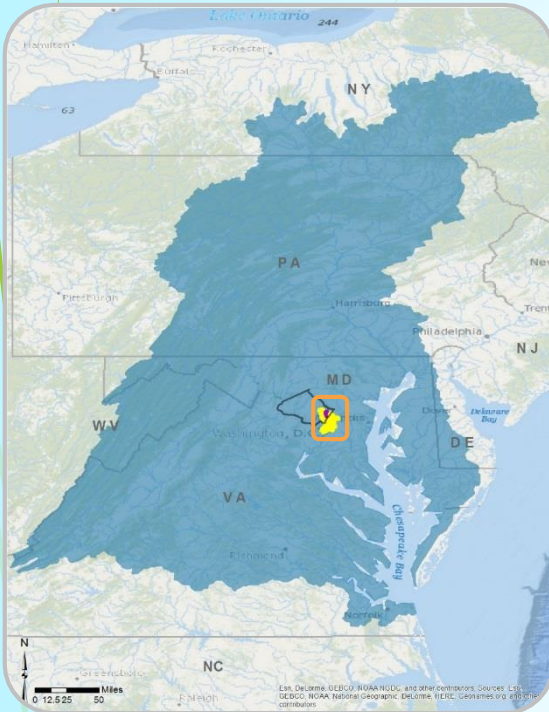
Today's Agenda

- Watershed 101
- What are Green Streets
- Cannon Rd Green Streets Project
- Project Schedule
- Breakout to Boards

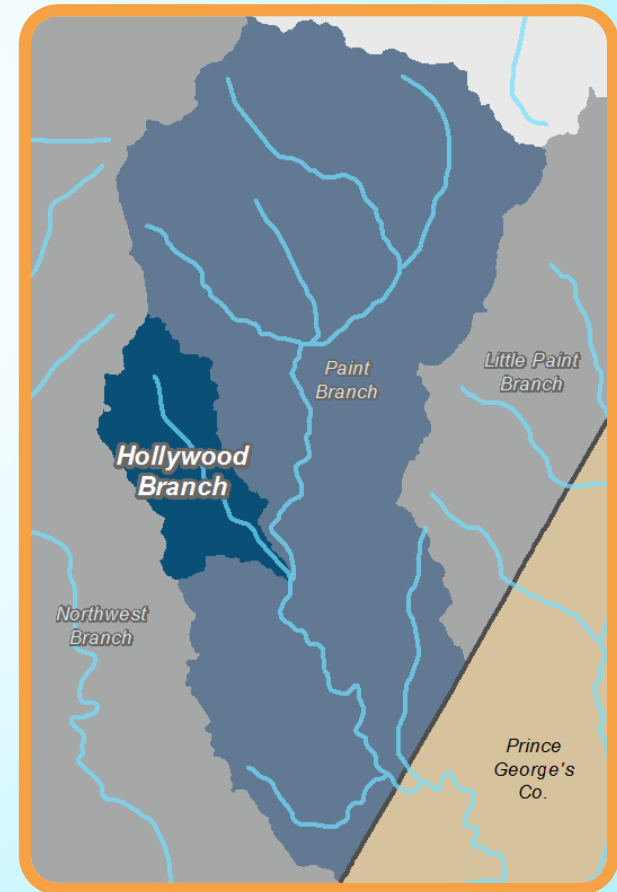


Watershed 101

What watershed are we in?



U.S. Army Corps of Engineers map of the Anacostia River Watershed
<http://www.nab.usace.army.mil/portals/63/docs/Environmental/Anacostia/Anacostia2.pdf>



Watershed 101

What is Stormwater Runoff?

- ▶ Water that does not soak into the ground becomes surface runoff. This runoff flows over hard surfaces like rooftops, driveways and parking lots collecting potential contaminants and flows:
 - ▶ Directly into streams
 - ▶ Into storm drain pipes, eventually leading to streams
 - ▶ Into Stormwater management facilities, then streams

Two Major Issues:
Volume/Timing of Runoff
Water Quality

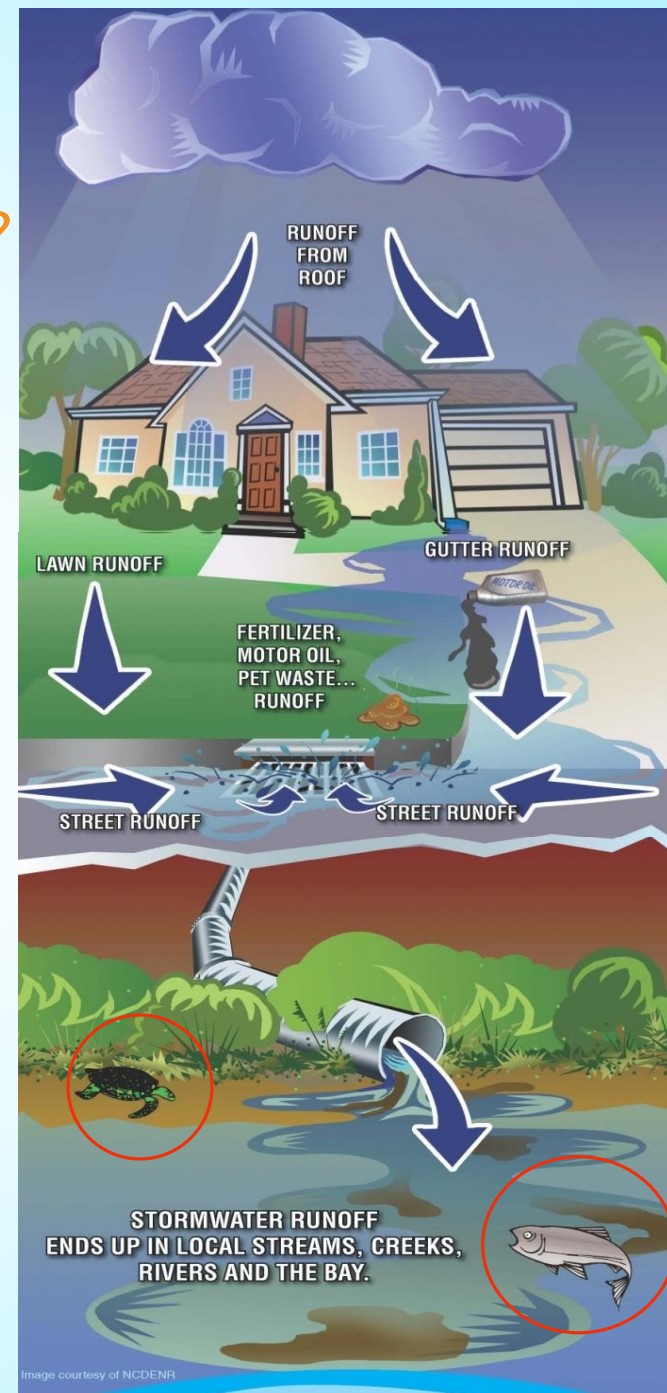
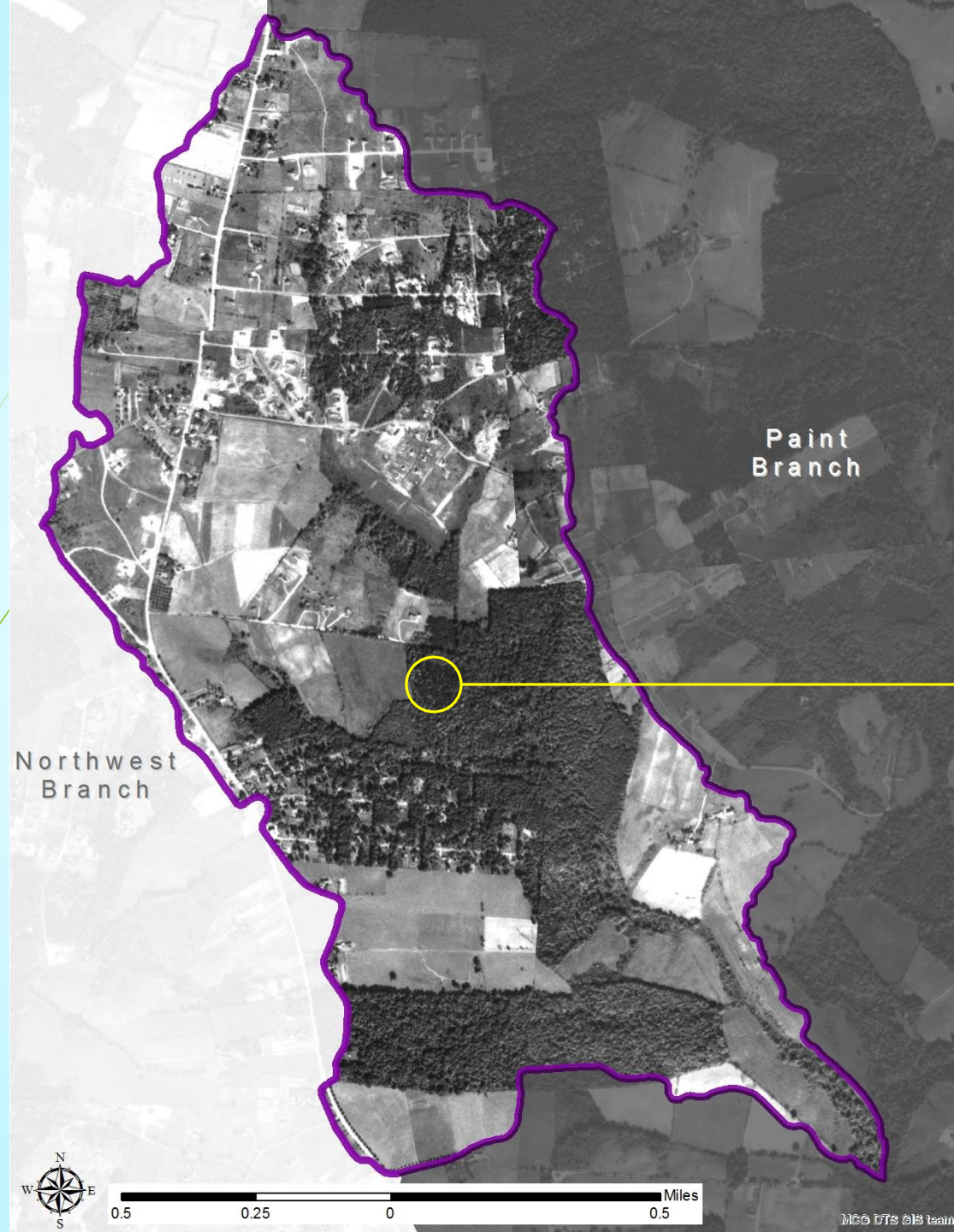


Image courtesy of NCDENR



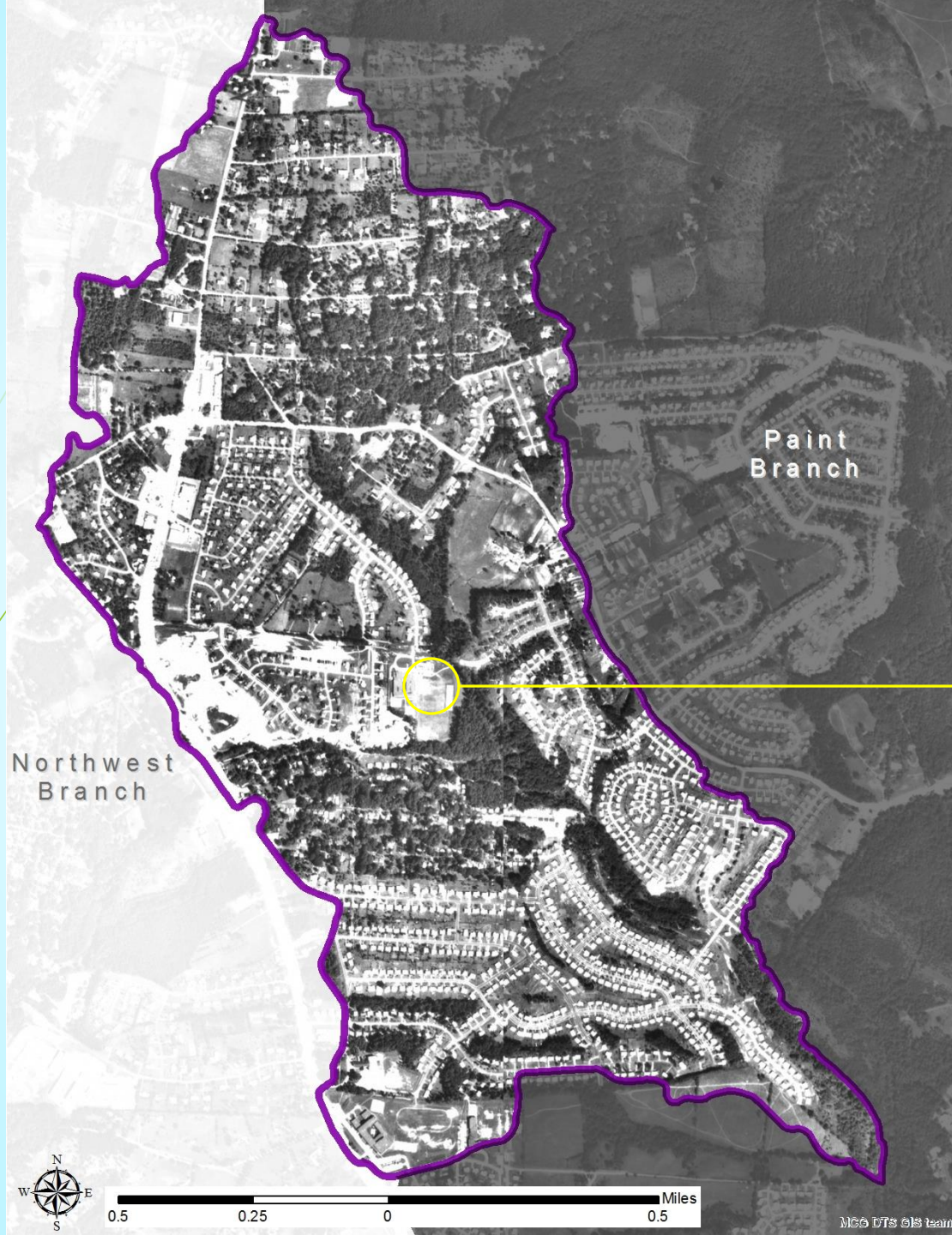
Paint
Branch

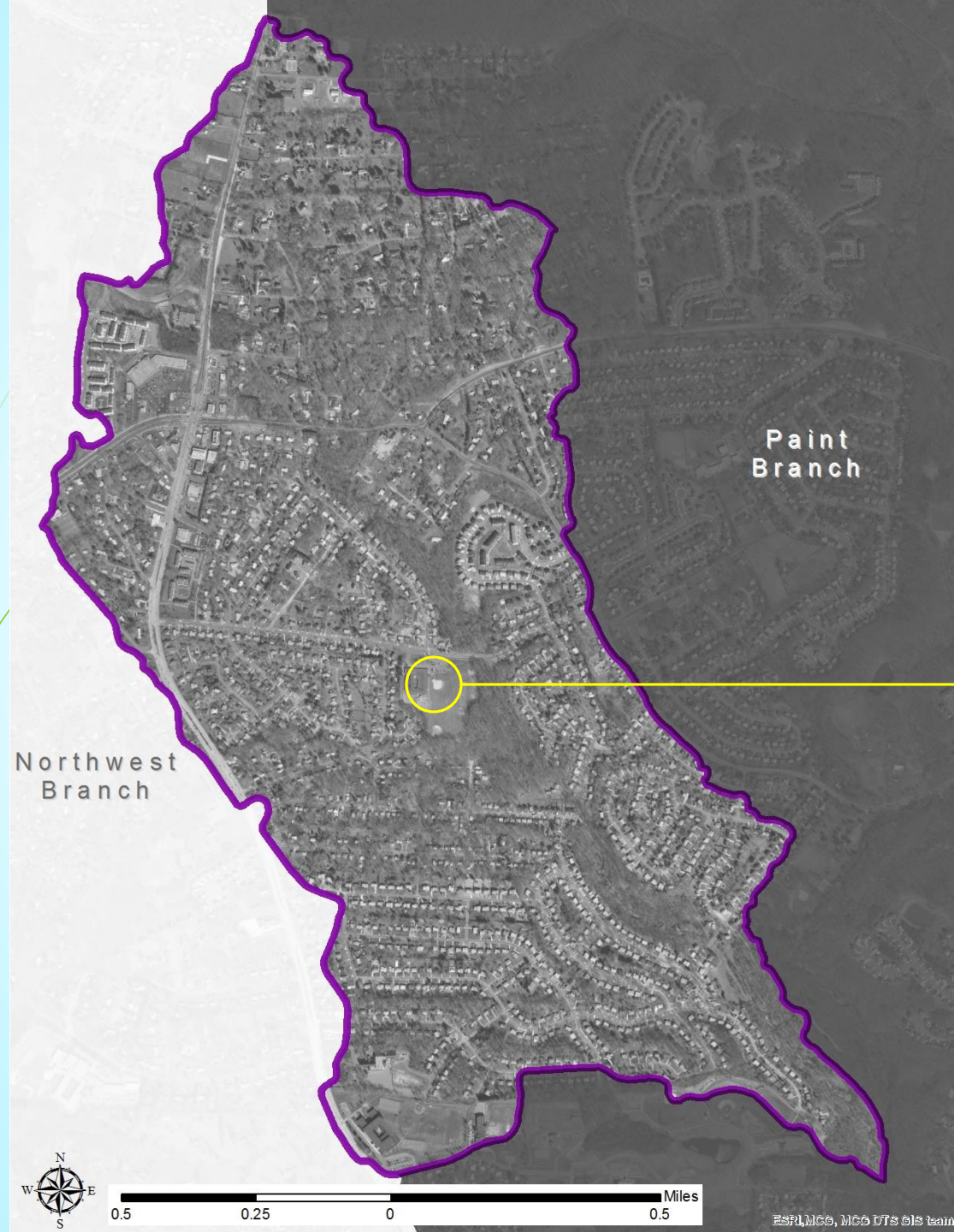
Northwest
Branch

We are here



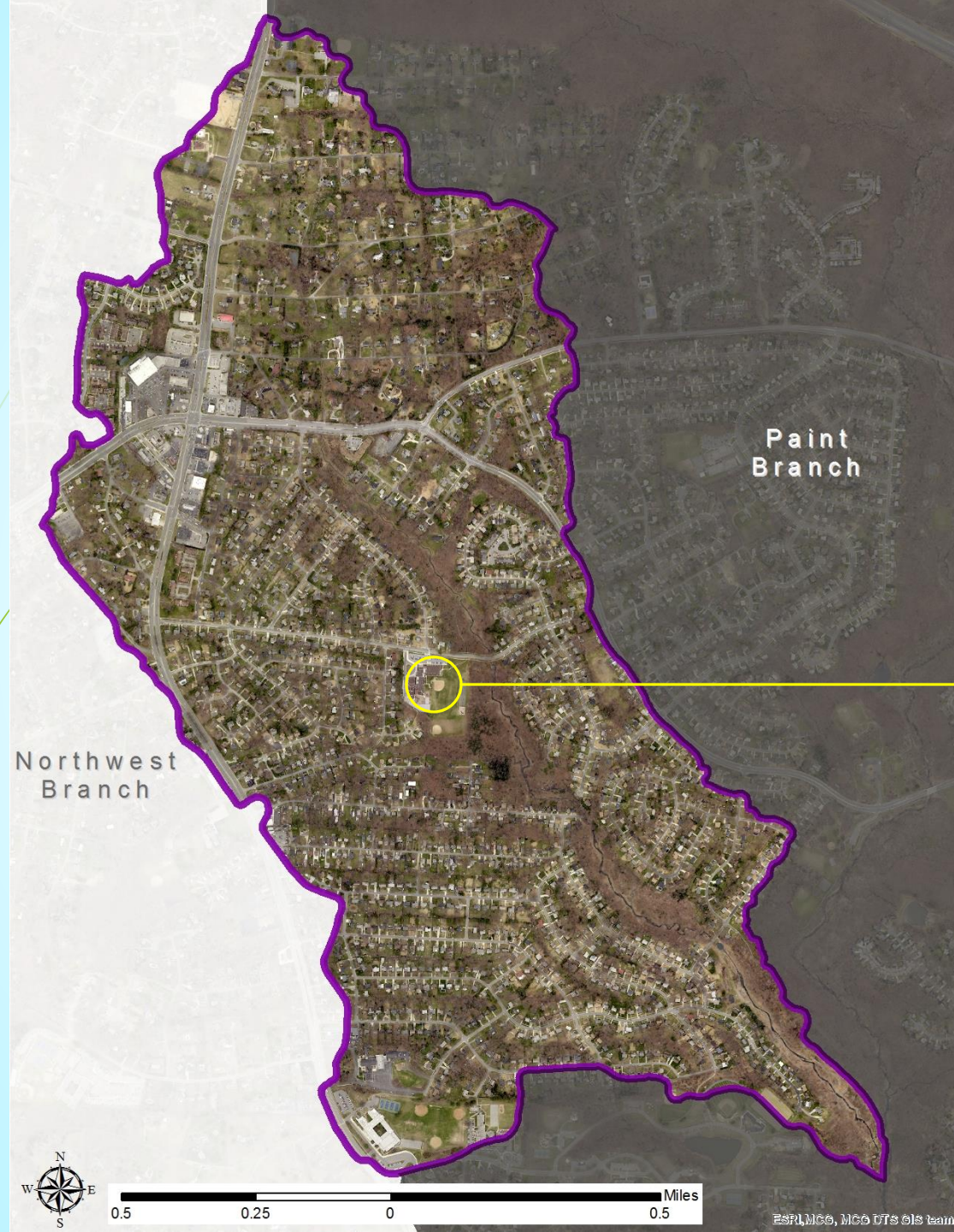
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We are here

1993



We are here

Watershed 101

Impacts of Unmanaged Stormwater Runoff



What is the County doing to protect and restore our Watersheds and Streams?

- ▶ Must meet regulatory requirements related to Federal Clean Water Act permit program
- ▶ MS4 Permit - **Municipal Separate Storm Sewer System**
 - ▶ New or upgraded stormwater facilities for **20%** of existing impervious surfaces that pre-date stormwater management requirements



Rain Gardens at Schools



Pond Retrofit



Green Streets



Stream Restoration

Watershed Restoration Approach



Residential

RainScapes;
Tree Montgomery;
Outreach

Neighborhood

Green Streets, Libraries,
Schools, Stormwater
pond retrofits

Watershed Stream Restoration

Stream
Health

Watershed Restoration Approach

You are standing next to a RainScape...

This RainScape is part of a network of environmental landscapes created at homes, businesses and congregations across Montgomery County. The goal of these projects is to reduce stormwater runoff and improve the water quality of our streams.

Plants used in RainScapes projects soak up the water, attract pollinators, and add beauty to properties. The image below shows six common types of RainScapes.



You can help. Build a RainScape at home! Montgomery County's RainScapes program offers **cash rebates** for projects. Visit [RainScapes.org](https://www.RainScapes.org) or call 311. 

Beautiful landscapes for healthy watersheds **RainScapes** 



Watershed Restoration Approach



Sligo Park Hills Green Streets



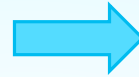
Colesville Park & Ride



White Oak Middle School

Watershed Restoration Approach

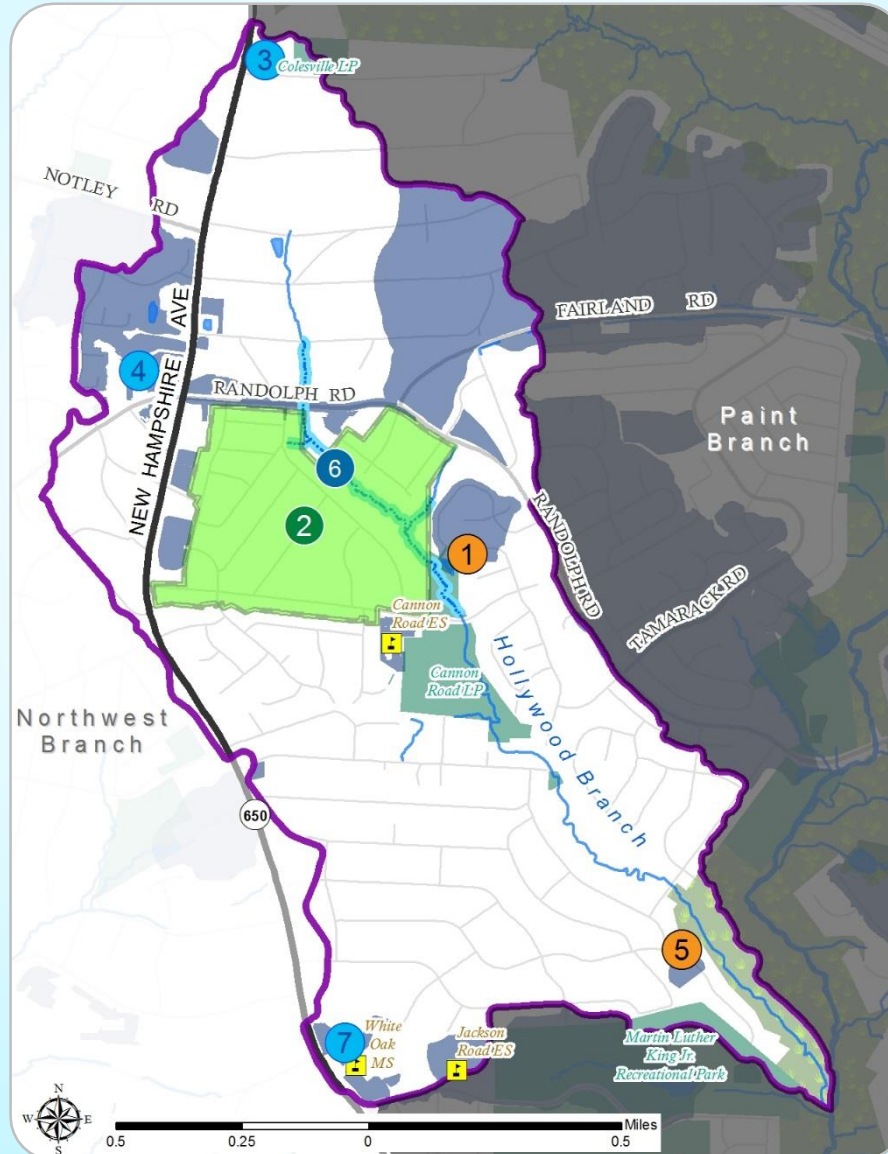
BEFORE



AFTER



Hollywood Branch Restoration



Legend

-  Cannon Road Green Streets
-  Hollywood Branch Watershed
-  Parks / Natural Area
-  Area with Stormwater Management

What are GREEN STREETS?

- A variety of small scale stormwater practices located along the street within the public right of way.
- Provide water quality treatment for stormwater runoff from roads which represent approx. 1/3 of impervious surfaces in Montgomery County.



Bioretention Gardens



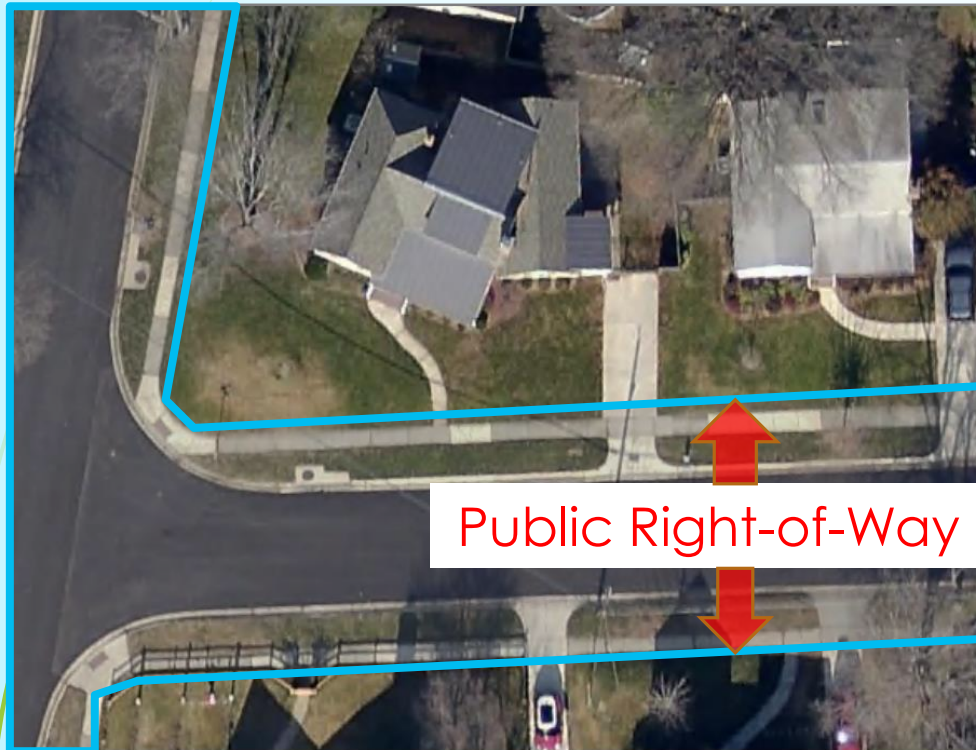
Rain Gardens



Tree Boxes

Where will GREEN STREETS be?

- Selected areas within the Public Right-of-Way



Between Sidewalk and Curb



Without Sidewalk

How Do Rain Gardens Work?

During the Rain



During the Rain (Tenbrook Dr, May 14th 2016)

Dry 48 hrs later



Dry 48 HRs Later (Tenbrook Dr, May 16th 2016)



How Do Rain Gardens Work?

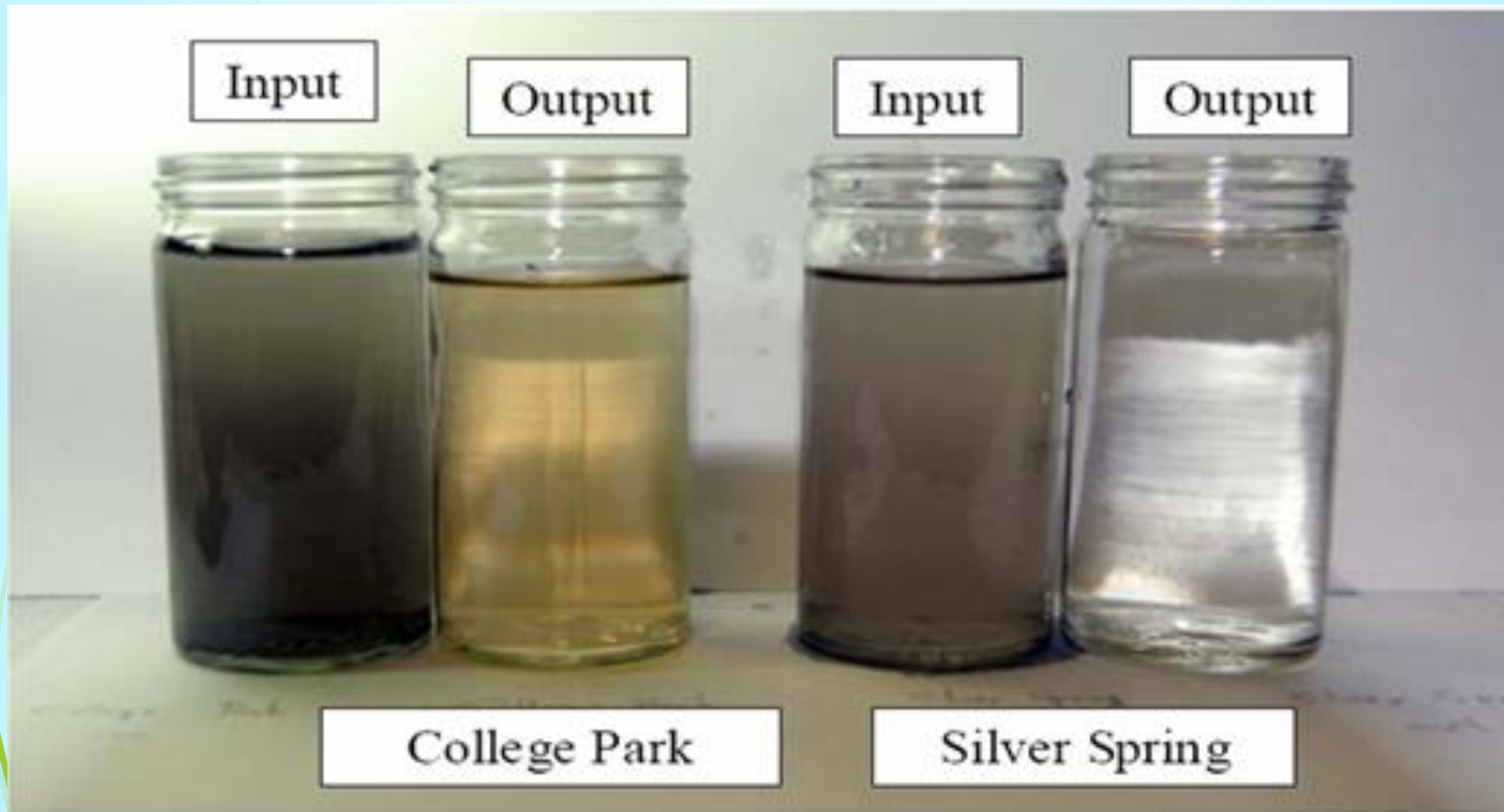
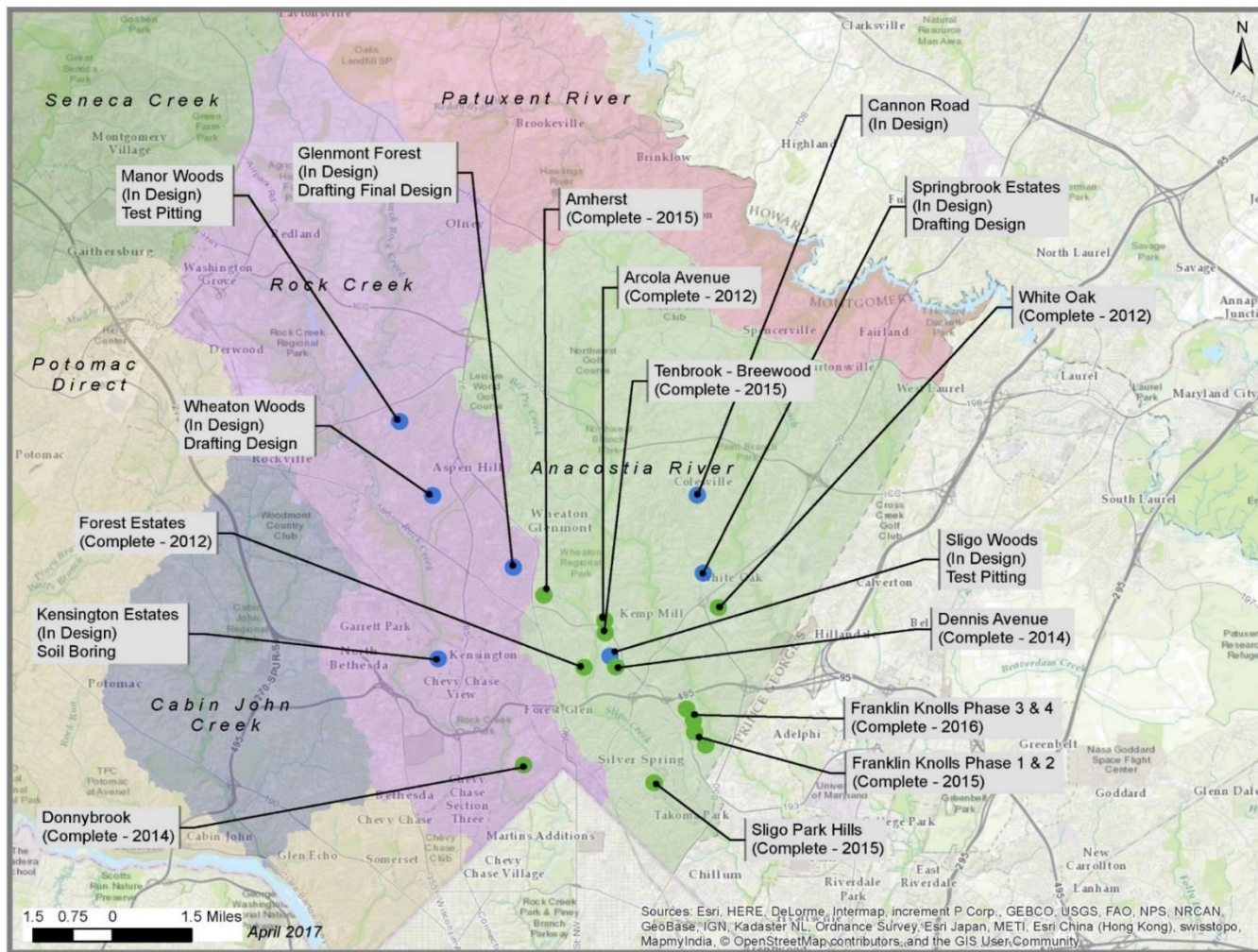


Figure 30. Input and output water samples for Cells CP and SS for the event of 4/3/2006.

Photo by Dr. Davis at University of Maryland

Where Are GREEN STREETS Projects in Montgomery County?



Completed Projects (9)

Arcola Ave

Forest Estates

White Oak

Dennis Ave

Donnybrook

Sligo Park Hills

Breewood

Amherst Ave

Franklin Knolls

Projects In Design (7)

Sligo Woods

Wheaton Woods

Manor Woods

Glenmont Forest

Cannon Road

Springbrook Estates

Kensington Estates

GREEN STREETS

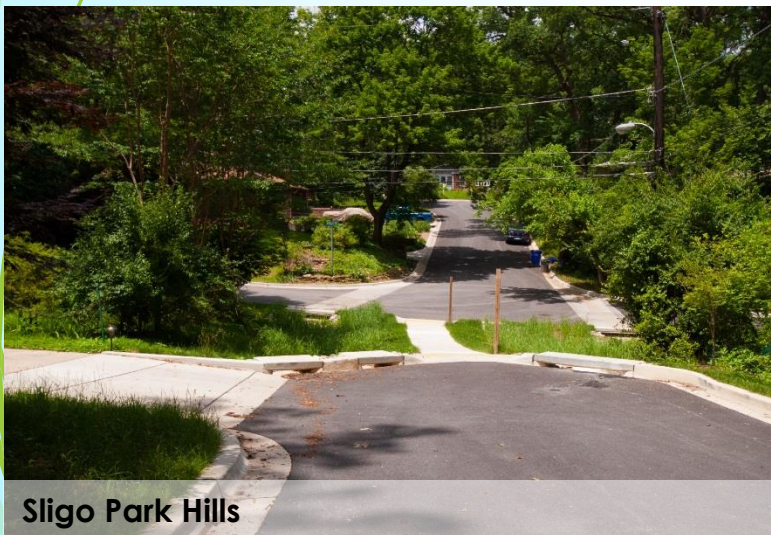
Projects in Montgomery County



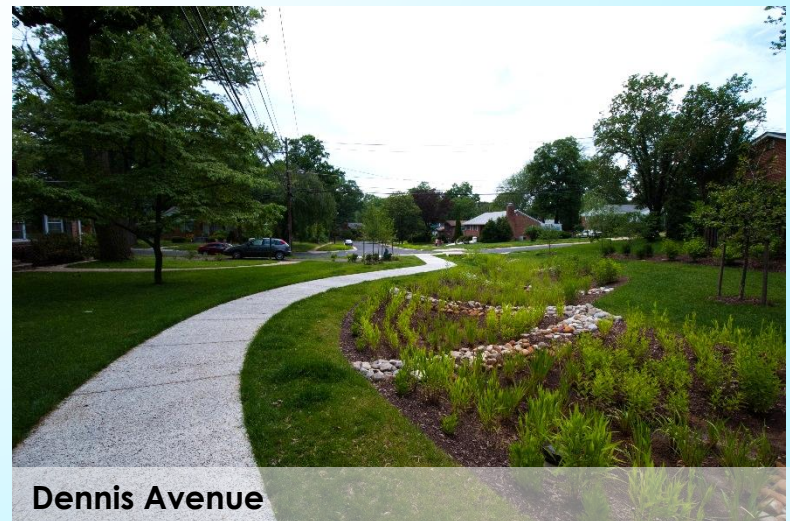
White Oak



Forest Estates

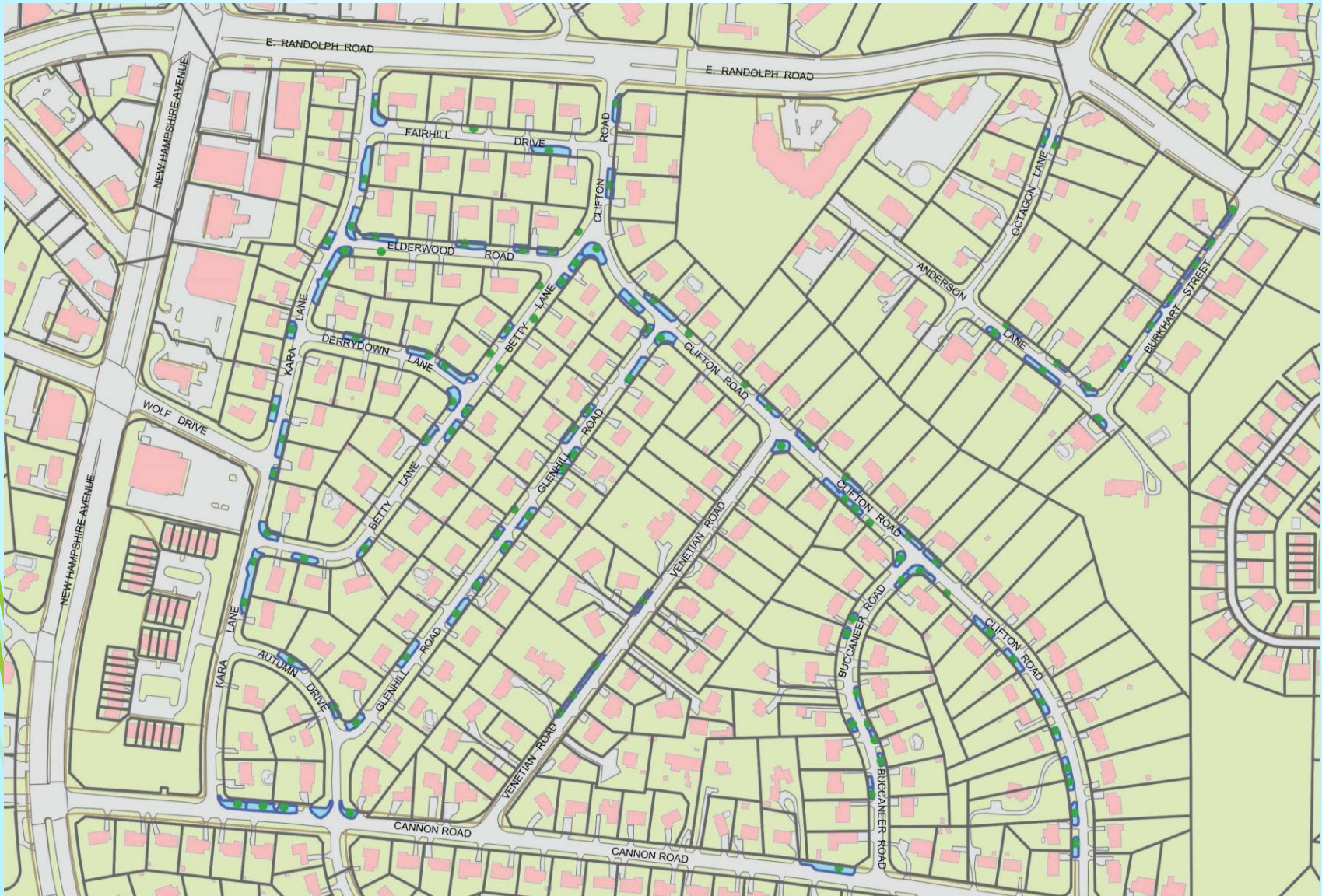


Sligo Park Hills



Dennis Avenue

CANNON ROAD GREEN STREETS



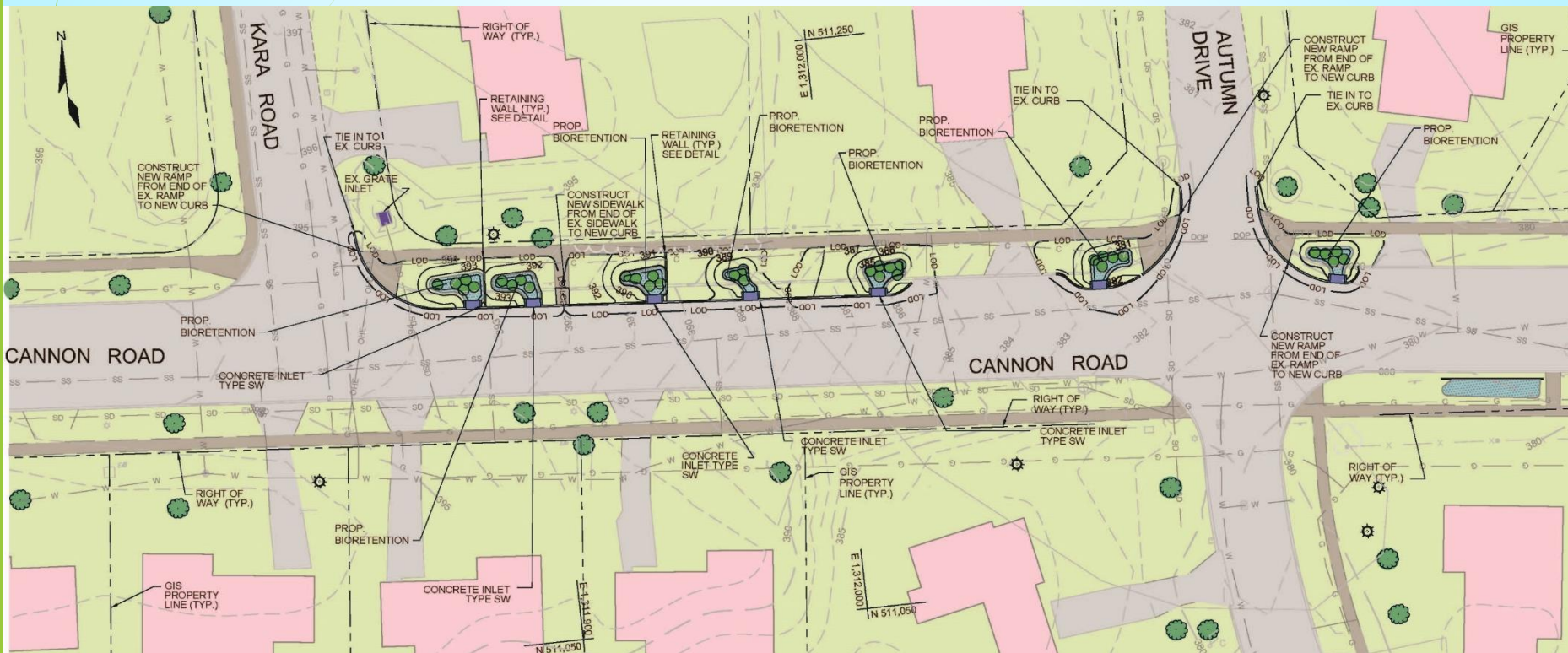
GREEN STREETS

Design Considerations



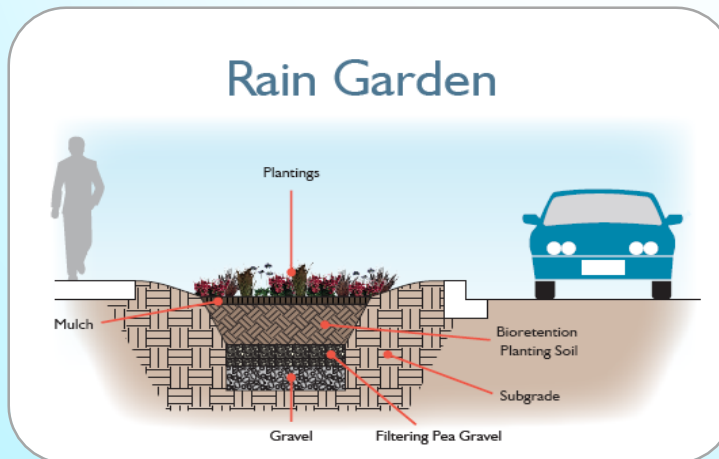
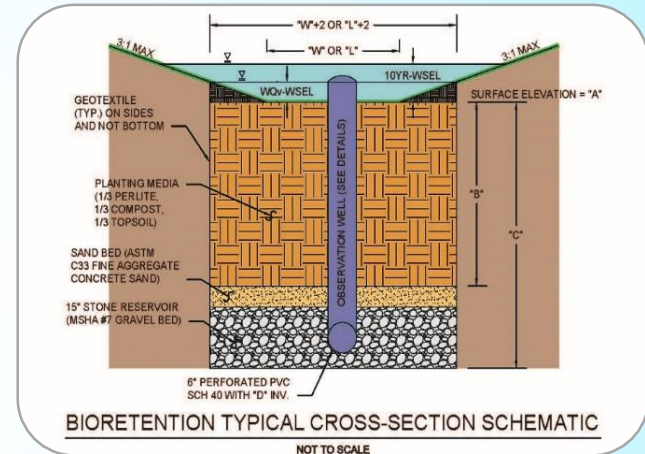
- Pedestrian Safety
- Driveways
- Homeowner Usage
- Parking Demand
- Trees
- Utilities
- Slope
- Soils

CANNON ROAD GREEN STREETS Closed Section

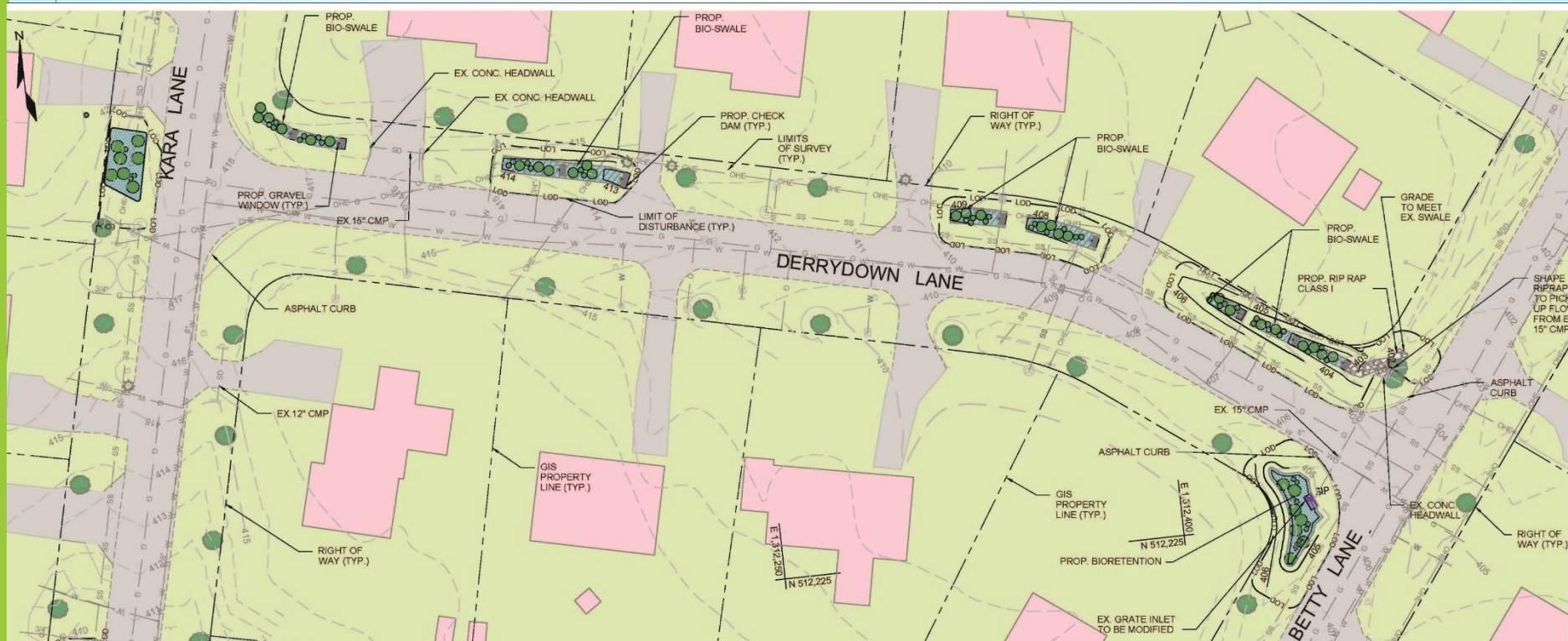


Green Streets Practices In CANNON ROAD

Rain Gardens/Bioretentions

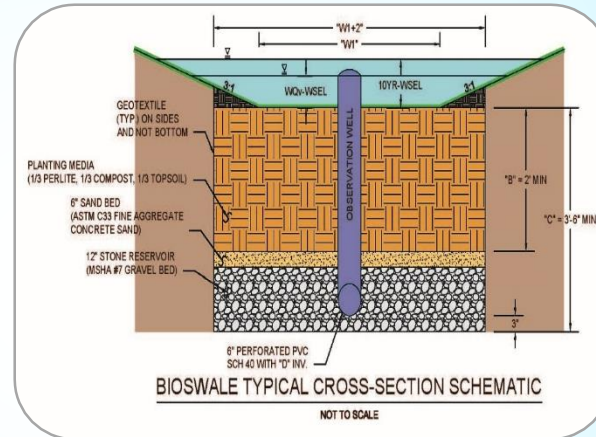


CANNON ROAD GREEN STREETS Open Section



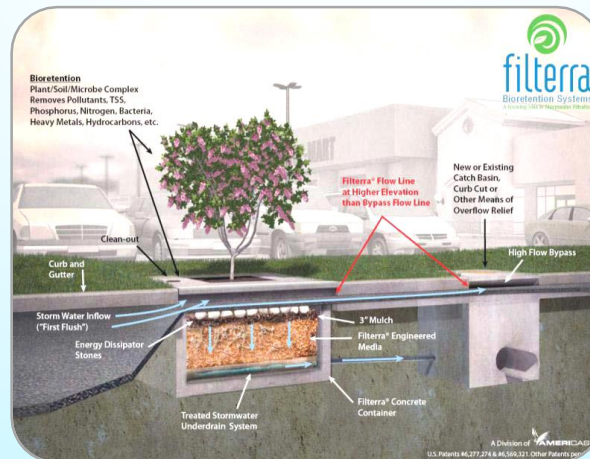
Green Streets Practices In CANNON ROAD

Bio Swales



Green Streets Practices In CANNON ROAD

Tree Boxes



GREEN STREETS

During Construction

- Approximately 4-6 weeks to get from Excavation to Ready for Planting



Excavation & Backfill



Concrete Work



Planting



Ready for Planting

Maintenance

- MCDEP will visit monthly (on average)
- Maintenance Team will:
 - Water plants, if needed
 - Replace plants as needed
 - Replenish mulch
 - Remove weeds
 - Remove sediment & trash

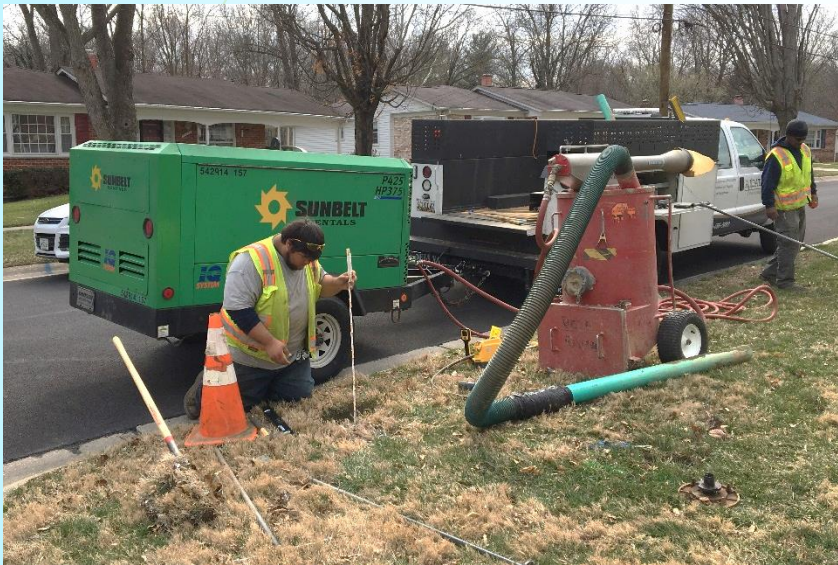


Project Schedule

Project Phases	Dates
<i>Preliminary Assessment</i>	<i>November 2013</i>
<i>1st Public Meeting</i>	<i>February 25th 2014</i>
<i>Soil Borings</i>	<i>Fall 2017</i>
2nd Public Meeting	December 14th 2017
Draft Design	Summer 2017
Community Walk	Summer/Fall 2018
Final Design	Summer/Fall 2019
Construction	Winter 2020 – Spring 2021

We Are Here

Next Step: Utility Depth Locating



Planting Designs

**GREEN
STREETS**

PLANTING PLAN DESIGN OPTIONS



CLASSIC RAIN GARDEN in summer: Attractive, high-performing flowers and grasses.

EXAMPLE PLANTS



Purple Coneflower



Blue Flag Iris



Daffodil



Joe Pye Weed



Aster



Switchgrass



Butterfly Milkweed



Black-Eyed Susan



LAYERED RAIN GARDEN in fall:
Combination of perennials, shrubs and a tree.



CONTEMPORARY RAIN GARDEN in fall:
Minimalist layout, simple plant palette



POLLINATOR RAIN GARDEN in late summer:
Meadow-like garden with diverse plant palette

Questions?

► For More Information:

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► ho-ching.fong@montgomerycountymd.gov

► Project Webpage:

<https://www.montgomerycountymd.gov/water/restoration/cannon-road.html>

